Leica DC Cameras with IA Applications

Installation advice Issue 2

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Abstract

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Introduction

The following notes aim to give some guidance in the installation and use of the Leica IA applications IW, MW, CW and FW that have been updated to work with the new DC cameras.

The compatible DC cameras are those that use the new PCI4 Hotlink board and the DC500 camera that uses the Firewire board. These notes are for use by qualified Leica personnel only.

Note: Additional information is in the release notes which are located on each of the application CDs. Please read these before you start to install. These notes are in pdf format.

The user manuals for the Server CD are also included on the Server CD in pdf format.

CD's required for DC Camera use

The following CD versions are essential for compatibility with DC cameras. Earlier versions of the applications will not work with the new camera drivers. DC cameras cannot be used with autofocus.

DC Camera Version 4.1.1 (This is an interim version for use with IA software only). Please do not use later versions until further notice as there are known incompatibilities.

Leica Server V2.1.2

Leica QWin V2.5.1

Leica MW V3.2

Leica FW V1.2.1

Installation

WARNING: These are for Windows 2000 only with at least 256MB ram installed in the PC. For use with images greater than 2k x 2k 512MB ram should be installed.

The simplest and easiest installation will be from a newly installed version of Windows 2000 that has no previous drivers or applications installed.

After each stage of the installation re-boot the PC.

Step 1 - Install DC Camera software

If you already have DC Camera software installed, check that the cameras are working. Completely uninstall any previous version of the DC Camera software unless it is the version specified above. It is essential that this uninstall is performed. Also rename as ".old" the configuration files in the Twain32 directory these are not necessarily compatible with a different version of DC Twain.

Install the DC Camera software first, carefully following the instructions provided on the CD. Make sure that this is working correctly (e.g. using Windows Imaging, PaintShop or IM50) before installing Leica Servers.

Note: If the cameras are not working, do NOT proceed. You will only compound any problems. You must have the DC Cameras working independently of the IA applications before you install the IA applications. Check the camera installation as described on the DC camera CD and retry the installation.

Step 2 - Install Server CD

You will find the user manual for the server on the CD. Read it before proceeding.

Note – Only install one server component at a time and check it is working correctly before you install another component. (You should only have one tick box set for installation at a time.)

Warning – the uninstall button will remove ALL servers not just those with ticks new to them. Use with extream care.

Install Leica DC Twain from the Server CD. (Do not install the old drivers for DC cameras using PCI3 interface boards, these boards are not compatible). (Do not re-install any other drivers from the Server CD at this time, for example Meteor drivers. Make sure all are checked OFF.)

From the Windows Control Panel select the Leica Imaging application (the one that has the Leica logo), this shows the Server select dialog.

Select the required driver from the Image Server configure dialog -> Select Image Driver. Select Preview and see that the DC Twain window appears.)

Now check OFF the DC Twain selection and check ON the Peripheral server and install it. Please use the DM microscope SDK that is automatically installed from the Server CD. Make sure you select the correct radio button for the model of DM Microscope you will be using. If you have a later version e.g. V4.1.3, please completely uninstall this (Also you must manually remove the remaining configuration files).

Step 3

If all is OK so far you should now be able to install the IA software as normal.

Refer to: Read the Release notes on the CDs before you start the installation

Hints

If you have messages on starting the camera suggesting that the camera is not connected when it obviously is – try closing the application and rename the 'LastUsed' configuration file from the folder WinNT/Twain_32/LeicaDC. If these files are corrupt or not compatible the cameras will not start.

DC300 resolution is high and can be used with Leica QWin. However you cannot see the whole image on the screen at full resolution so the DC300F and DC350F are better choices to use with Leica QWin.

With Leica QWin, when using high-res cameras, go to preferences and check on all the flags (fit to window etc). However this can slow down image refresh, so you have to decide which is the best compromise for the way you are using the software.

With Leica QWin, make the image memory suitably large e.g. 100M in the System Configuration dialog.

For use with IA apps, switch off the auto gamma and auto contrast in the DC Twain. Do a Reset of these values. If you leave these auto functions on, the intensity of the image can vary, this is OK for image documentation but can be a problem when you want to use a fixed detection threshold.

For use with IA apps do not use Auto Exposure for repeated image grabbing. (This function is in the Image Server dialog - so it can be used to quickly get an image, however once you know the settings to use, Auto Exposure is not recommended as it slows down the acquisition rate).

For best colour rendition set the gamma to a value of 1 and only make small changes to gamma. You will find that small changes to gamma can have a large effect on the image quality.

Note: with the DC300F and DC350F there is a non-linearity in the exposure time at around 114.5ms (due to the physical properties of the camera) it is best to adjust the light level so that you are faster or slower than this.

To display live images with fastest refresh rate you should have an acquire time of less than 114 msec.

Be aware that the resolution of the images displayed in live mode (for DC300 & DC500) is lower than the final acquired image. For example you may see pixelation and aliasing. This is reasonable so that you have a fast image refresh.

When you use a DC500 + Leica QFluoro with narrow band filters, the exposure can appear good on the screen live image, but when you grab an image it is darker than expected (for red and blue filters, not green). At the moment there is no explanation for this. However when you switch the camera to 16 bit mode you can use the Auto-scaling function to get high brightness images and this works well.

In Leica MW when using interactive measurements, switch off 'fit to window', this speeds up the image refresh.

Limitations

Note: There are some image resolutions that do not acquire good images and these issues will be resolved in a later release. These are DC500 3900 x 3090 9 shot and DC300 with the expanded resolution image. For the DC500 using 2600 x 2060 16 shot, please switch graphic display to 24 bit colour

DC cameras cannot be used with Autofocus functions of the Peripheral Server as used by QWin and MW.

Some of the Leica MW processing functions (e.g. QGrain) are limited to 2k x 2k images due to the speed of processing of large images.

The resolution of the image selection with DC500 does not display correctly with DC Twain version 4.1.1.

In general for IA applications, you will find that images of 1280 x 1100 or smaller give good performance and you can see the whole image on a monitor set to a suitably high resolution.

These IA applications are for Windows 2000 only with at least 256MB ram installed in the PC. For use with images greater than 2k x 2k, 512MB ram should be installed (or 768 MB ram with Qfluoro).

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